

IN THE CLAIMS:

1           1 (Currently Amended). A large bandwidth add-drop filter for a planar waveguide  
 2 device comprising:

3           ~~at least one coupler~~ an input coupling structure receiving an input signal; and

4           an output coupling structure providing an output signal; and

5           at least two ~~grating~~ waveguides connected to said input and output coupling structures,  
 6 said at least two waveguides having a ~~with~~ superstructure and superperiod ~~having a~~ photonic  
 7 band-gap ~~covering at least 4 optical channels~~ grating, including variations of grating amplitude  
 8 and grating phase and grating periodicity, wherein said photonic band-gap grating covers the  
 9 spectral range of optical frequencies added or dropped by said filter, wherein said filter  
 10 provides at least one pole and at least one zero at a frequency within said spectral range.

1           2. (Original) An add-drop filter as claimed in claim 1, wherein the photonic band-gap  
 2 covers at least 8 optical channels.

1           3. (Cancelled)

1           4. (Original) An add-drop filter as claimed in claim 1, wherein the grating waveguides  
 2 have a sampled grating strength profile.

1           5. (Original) An add-drop filter as claimed in claim 1, wherein at least one coupler  
 2 comprises a directional coupler.

1           6. (Original) An add-drop filter as claimed in claim 1, wherein at least one coupler  
2 comprises multi-mode interference waveguides.

1           7. (Original) An add-drop filter as claimed in claim 1, wherein at least one coupler  
2 comprises diffracting slab waveguides.

1           8. (Previously Presented) An add-drop filter as claimed in claim 1, wherein at least one  
2 coupler comprises diffracting slab waveguides.

1           9. (Original) An add-drop filter as claimed in claim 1, further comprising two  
2 couplers, in which a first coupler provides an input port and a drop port and a second coupler  
3 provides an add port and a transmission port.

1           10 (Previously Presented). An add-drop filter as claimed in claim 1, wherein said  
2 superstructure provides spectrally periodic transmission bands aligned with optical channels.

1           11. (Previously Presented) An add-drop filter as claimed in claim 1, wherein said  
2 superstructure has one or multiple superperiods.

1           12. (Original) An add-drop filter as claimed in claim 1, wherein the grating  
2 waveguides have sampled grating strength profiles providing a window transmission function,  
3 covering a band of optical channels.

1           13. (Original) An add-drop filter as claimed in claim 1, wherein the grating  
2 waveguides have sampled grating strength profiles providing two or more window functions,  
3 each covering bands of optical channels.

1           14. (Original) An add-drop filter as claimed in claim 1 further comprising a grating  
2 tuner for changing a group velocity of one or more of the grating waveguides.

1           15. (Previously Presented) An add-drop filter as claimed in claim 14, wherein the  
2 grating tuner heats at least one of the grating waveguides.

1           16. (Cancelled)

1           17. (Cancelled)

1           18. (Previously Presented) An add-drop filter as claimed in claim 1, wherein one or  
2 more grating arms comprises delay-line waveguides.